PRODUCT SUPPORT SURVEY 2014

Gulfstream, Embraer tie for top spot among jets, Mitsubishi leads t-props

by Matt Thurber (narrative)
and David Leach (data and charts)

The results of this year's **AIN** Product Support Survey are in, and some big changes have upended last year's rankings.

Embraer and Gulfstream tied for first place in jets, having each dropped to an overall average of 8.1 from last year's number (8.2 and second place for Embraer and 8.3 and first place for Gulfstream). This is the first time in many years that Gulfstream hasn't owned the top spot by itself. Two more OEMs tied for second place. Bombardier's support for Globals and Challengers jumped to number two from last year's tie for sixth place, a major gain that might reflect the enormous efforts Bombardier has put into product support. And Dassault's support for Falcons made a giant leap to number two from last year's seventh place.

In third place are Gulfstream's midsize jets with a 7.7 rating, the same number but up two places from fifth last year.

On its own in fourth place is Bombardier's Learjet support, down one place and four tenths of a point to 7.5 from last year.

Cessna's Citations also dropped four-tenths of a point, to 7.4 and fifth place, down from last year's 7.8 and fourth place.

Boeing Business Jets, which received enough ratings to appear on this year's list, scored 7.3 for sixth place.

In a tie for seventh place at 6.4–down from 6.9 last year–are the now former Hawker Beechcraft jets, which for most of the period surveyed were not yet owned by Textron. The results for the past few years may reflect the turmoil that preceded Textron's purchase of Beechcraft earlier this year.

Turboprops

The turboprop segment saw the same rankings as last year, headed by perennial favorite Mitsubishi for its support of the MU-2 at 9.2 (down from 9.4 last year), followed by Pilatus for the PC-12 in second place at 7.9 (the same as last year). Beechcraft's support for the King Air fleet garnered 7.0, down two-tenths of a point from last year.

Rotorcraft

For rotorcraft, the rankings are the same as last year's, with Bell Helicopter retaining the lead at 7.2, up one-tenth from last year. AgustaWestland takes second place, but with a significant climb to 7.1 from 6.5 last year. Also achieving a large jump in ratings is third-place Sikorsky at 7.0, up from last year's 6.3. Airbus Helicopters' (formerly Eurocopter) ratings are up one-tenth of a point, to 5.6.

Newer Business Jets

In the newer business jets category, Gulfstream retains its first-place lead at 8.2 (down from 8.5 last year), and with a slimmer margin over second-place Embraer's 8.1. In a four-way tie for third place at 7.8 are Bombardier's Challengers and Globals, Dassault's Falcons and Gulfstream's midsize jets. All climbed in ratings from last year, except for the Gulfstreams, which remained steady at 7.8.

Bombardier's Learjets claimed fourth place at 7.7, down three-tenths of a point from last year. In fifth are Cessna's Citations (7.3, down from 8.0), followed by Hawker Beechcraft in sixth (Hawker jets, 6.6) and Premier/Beechjet/Hawker 400/400XP at 6.1, reductions of 0.1 and 0.7, respectively.

Older Business Jets

The Bombardier Challenger series moved up to first place in the older jets category this year, with 8.0, up from 7.7 and a tie for second place last year. Dassault Falcon saw a four-tenths jump in this category, tying for second place at 7.8 with Gulfstream, which dropped three-tenths of a point. Bombardier's Learjets scored third place at 7.4, down from 7.7 and also down one level from last year. In fourth place are Cessna's Citations at 7.3, down four-tenths of a point from second place last year, followed by Beechcraft's Premier/Beechjet/Hawker 400XP down to 6.7 from 7.0 and the Hawker jets at 6.2, down a full point from last year.

Newer and Older Turboprops

Pilatus is once again top of the rankings for newer turboprops with a rating of 8.1 this year, up two-tenths of a point from last year. Beechcraft's King Air nearly held steady in second place, with a one-tenth of a point drop to 7.0 from 7.1 last year. As in the past, **AIN** did not receive enough ratings for Piper or TBM turboprops for those aircraft to be listed in the final results.

The older turboprops are dominated by Mitsubishi's MU-2s, followed by Beechcraft's King Airs. Although there are hundreds more Twin Commanders flying than MU-2s, this type also did not receive enough ratings to be listed.

Rating the Categories

Some numbers jumped out from the 10 categories in the **AIN** Product Support Survey. Gulfstream's newer jets 9.0 rating for overall aircraft reliability is the highest for all the jets, although it matched the 9.0 received by Pilatus for newer turboprops. The nearly perfect 9.9 rating from Mitsubishi MU-2 owners and operators reflects ongoing admiration of the support for that high-performance turboprop.

AOG response and warranty fulfillment are important categories, and here too Gulfstream is highly ranked, although Embraer also saw a high number in both categories. Embraer and Bombardier (Challengers and Globals) scored higher in the technical representatives category, another important area where OEMs interact with customers.

The perennially vilified cost-of-parts category remains one of the low points, but here Embraer scored relatively high at 7.1. Ratings were higher in the parts-availability section, with Gulfstream scoring the highest at 8.3 for newer jets. Dassault Falcon took the lead in parts availability for older jets, possibly a reflection of its efforts to keep its Falcon 10, 20 and 50 models flying as well as its endeavor to reduce parts prices; at 6.2 it scored the highest in the older jets cost-of-parts category.

Sikorsky scored the highest number in the 10 categories for rotorcraft, with an 8.5 for all-important technical representatives. ❑

What have you done for me lately?

Designing and manufacturing new aircraft is an exciting business, but it's when those aircraft enter service that the real work begins: supporting them for the many decades they will fly. Aircraft original equipment manufacturers (OEMs) long ago realized the importance of product support and they spend vast amounts of time and money not only to make sure their in-service products stay safe but also to ensure that owners and operators are so happy that they will be return customers when buying more aircraft.

Owners and operators invariably express amazement at the prices charged for aircraft parts, but when considering the enormous efforts that OEMs must apply to supporting their products, it's not surprising to learn that just one turbine engine, for example, costs half a million dollars. Or that a new windshield costs tens of thousands of dollars. That's the price operators must pay if they want to be able to fly safely and with a high level of dispatch reliability. It's the price of ensuring an OEM can survive, prosper, develop new and better products and make the parts required to keep those products flying. Still, OEMs work hard to help lower operating costs. The whole process is fueled by competition and the quest for repeat business.

As part of this annual survey, **AIN** asks the OEMs to get specific about how, during the past year, they have beefed up the support they deliver. This is what they told us this year.

Bombardier

"Reliability and dispatch availability are key, but we're also focused on direct maintenance costs, which are becoming a major theme in the corporate aviation world," said Andy Nureddin, v-p of Bombardier customer services and support for business aircraft. "We've been successful in pushing the maintenance program and evolving it upward so we can take out costs."

What Nureddin means by "upward" is not only eliminating unnecessary tasks from the maintenance program but also extending maintenance intervals on the basis of historical data and moving some tasks to the new longer intervals. On the Globals, for example, "we're looking at a framework of 750 hours," he said. "The reason we call it evolved is that we won't be able to make that leap overnight." But the benefits are worthwhile, including lower maintenance costs and improved dispatch reliability.

The next aircraft to receive this treatment is the 604/605. The Learjet 40 and 45 have already gone through this process, and it was incorporated in the new Learjet 70/75. On the Challenger 300, the program changed the maintenance requirements of 4,700 components, and even more on the Globals. In some cases, new parts weren't needed, but better access to components helped, or an improved return-to-service check was more efficient.

In February Bombardier opened a new factory-owned service center in Singapore that incorporates interiors capability by Canada-based Flying Colours. Bombardier also opened a new parts depot in South Africa and expanded its parts facility in Frankfurt, Germany. Two new regional support offices were opened, one at the ExecuJet facility in Johannesburg, South Africa, and another at Toluca Airport near Mexico City. "Nothing replaces being local," Nureddin said.

AOG coordinators have a new tool to serve Bombardier operators, a Parts Express Learjet 45 dedicated to ferrying parts or technicians in North America. The jet is based at Chicago Executive Airport, and AOG coordinators can deploy mobile response team trucks or the jet or a combination of the two–whatever is needed to get the customer back in the air. "We're studying the effectiveness of this tool in other parts of the world," he said.

"Every year we continue to find more ways to serve our customers," Nureddin said. "We're evaluating for every region what is the growth footprint, whether to add a wholly owned service center, a joint venture or an authorized service facility. The name of the game is international growth, because that's where a lot of airplanes are going."

Dassault Falcon

In a reorganization of its product support system last year, Dassault Falcon improved communications between technical representatives and customer service managers and the Falcon engineering group. The engineering groups in both the U.S. and France work together with technical representatives to solve customer problems "quickly and efficiently." Falcon engineers from both countries are also spending time at each others' facilities, to encourage the sharing of information and enhance their abilities to work together to solve customer issues.

Dassault Falcon has upgraded its computer-assisted troubleshooting system (Cats) so that it is always up-to-date online and accessible from a variety of computing devices, from PCs and Macs to smartphones and tablets. Another new feature is an automatic feedback form. Various subscription levels are available for access to Cats, ranging from single to multiple users.

A "major redesign" of the Falcon customer portal allows customers to access all Falcon subscription-based "Smart" programs such as Cats, Falcon-Broadcast and spares ordering with just one login. One of the key features of the new portal is easy access to all documentation–free and subscription-based–for the user's aircraft.

In China, authorized service facility Shanghai Hawker Pacific received FAA approval to add current production Falcons to its repair station certificate.

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By the Numbers 2014	
Respondents who provided some survey data	1,089
Respondents who completed the survey in its entirety	961
Aircraft rated	2,172
Aircraft models receiving ratings	174
Minimum ratings required to be included in data	20
Respondents who rated aircraft	1,079

Combined Overall Average Ratings of Newer and Older Aircraft	Overall Average 2014	Overall Average 2013	Rating Change from 2013-2014
Jets			
Embraer (Phenom, Legacy, Lineage)	**8.1**	8.2	-0.1
Gulfstream (GII-GV, G300-G550, G650)	**8.1**	**8.3**	-0.2
Bombardier (Global)	7.8	7.6	0.2
Bombardier (Challenger)	7.8	7.6	0.2
Dassault (Falcon)	7.8	7.5	0.3
Gulfstream (Astra, G100-G280)	7.7	7.7	-
Bombardier (Learjet)	7.5	7.9	-0.4
Cessna (Citation)	7.4	7.8	-0.4
Boeing Business Jets	7.3	N/A	N/A
Hawker Beechcraft (Hawker)	6.4	6.9	-0.5
Hawker Beechcraft (Premier, Beechjet 400/400A, Hawker 400XP)	6.4	6.9	-0.5
Turboprops			
Mitsubishi (MU-2, Solitaire, Marquise)	**9.2**	**9.4**	-0.2
Pilatus (PC-12)	7.9	7.9	-
Beechcraft (King Air)	7.0	7.2	-0.2
Rotorcraft			
Bell	**7.2**	**7.1**	0.1
AgustaWestland	7.1	6.5	0.6
Sikorsky	7.0	6.3	0.7
Airbus Helicopters	5.6	5.5	0.1

Listed in order of the 2014 overall average (ties are listed alphabetically).
Bold indicates highest number in each category
Source: 2014 AIN Product Support Survey

Survey Rules & Methodology

As with **AIN** Publications' previous annual Product Support Surveys, the objective this year was to obtain from the users of business jets, turboprop airplanes and turbine-powered helicopters statistically valid information about the product support provided by business aircraft manufacturers over the last year and to report this information to our readers. The ultimate goal of the survey is to encourage continuous improvement in aircraft product support throughout the industry.

This survey was conducted via a dedicated website, created by **AIN** from the ground up to provide improved ease of use and to encourage greater reader participation.

AIN emailed qualified readers a link to the survey website and questionnaire. In total, 21,584 readers were invited to participate in the survey.

The survey website was open from May 1 to June 13. Respondents were asked to rate individual aircraft and provide the tail number, age (less than 10 years old or more than 10), primary region of service and whether they used factory-owned or authorized service centers, or both. Respondents were also asked to rate, on a scale from 1 to 10, the quality of service they received during the previous 12 months in the following categories:

- **Factory-owned Service Centers**–cost estimates versus actual, on-time performance, scheduling ease, service experience.
- **Authorized Service Centers**–same as above.
- **Parts Availability**–in stock versus back order, shipping time.
- **Cost of Parts**–value for price paid.
- **AOG Response**–speed, accuracy, cost.
- **Warranty Fulfillment**–ease of paperwork, extent of coverage.
- **Technical Manuals**–response time, knowledge, effectiveness.
- **Maintenance Tracking Programs**–cost, ease of use, accuracy, reliability.
- **Overall Product Reliability**–how the product's reliability and quality stack up against the competition.

Respondents were also asked to recognize individuals who had provided them with exceptional product support and service. The list of these people is available online at www.ainonline.com/above-beyond-2014.

The 2014 AIN Product Support Survey results for aircraft are published in this issue, avionics will be featured next month and engines will follow in October.

For information about the survey methodology and for answers to other questions about the survey, please contact David Leach, **AIN** director of finance and new product/online development, at dleach@ainonline.com. *–R.R.P.*

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Dassault Falcon

Dassault Aircraft Services added a new satellite service station in Van Nuys, Calif. A new factory-owned satellite service station at Moscow Vnukovo Airport offers line maintenance and AOG services for all Falcons.

Falcon Classics was unveiled last year to support Falcon 10s, 20s and 50s. The new program is designed to help improve availability while lowering costs for operators through partnerships with "selected vendors and suppliers."

Dassault Falcon released a new iOS and Android customer service app that provides offline access to AOG hotlines, field service contacts, service centers and a search feature for the nearest support contact and facility.

Dassault Falcon continues its efforts to attack the high cost of parts, and its Spares Special Programs have lowered prices on many parts. One such effort during the past two years was to cut the prices of parts costing $3,000 or less, a category that generates two-thirds of parts price complaints from operators and comprises three-quarters of Falcon inventory.

Eclipse Aerospace

This year marked the return of Eclipse Aerospace to the ranks of new-jet manufacturers, with delivery of the first Eclipse 550 on March 12. To support the 550, Eclipse is offering a guaranteed parts cost program.

Current Eclipse 500 owners can upgrade to the 550's Avio Integrated Flight Management System (IFMS, made by Innovative Solutions & Support) avionics suite, which offers high-resolution displays and a dual-redundant FMS.

Eclipse has also doubled the airframe life to 20,000 hours/cycles with no calendar limit (500 and 550), added anti-skid brakes (retrofittable to 500s with the IFMS avionics), an autothrottle system, a new standby display, new glass-faced windshields, improved landing-gear actuators and improved Fadec software.

To expand its service capabilities, Eclipse added a new Gold-level authorized service center in San Diego, Crownair Aviation at Montgomery Field.

According to Eclipse, "Same-day shipping of replacement parts continues to exceed 90 percent. Both Eclipse 500 and 550 owners continue to benefit from longer warranties derived from Eclipse 550 production."

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Combined Overall Average Ratings of Newer and Older Aircraft	Overall Average 2014	Overall Average 2013	Rating Change from 2013 to 2014	Factory Owned Service Centers	Authorized Service Centers	Parts Availability	Cost of Parts	AOG Response	Warranty Fulfillment	Technical Manuals	Technical Reps	Maintenance Tracking Programs	Overall Aircraft Reliability
Newer Business Jets													
Gulfstream (G300-G550, G650)	**8.2**	**8.5**	-0.3	**8.1**	**8.0**	**8.3**	6.3	**8.5**	**8.5**	7.9	8.5	8.3	**9.0**
Embraer (Phenom, Legacy, Lineage)	8.1	8.2	-0.1	7.7	7.7	7.9	**7.1**	8.4	**8.5**	**8.4**	**8.8**	8.3	8.4
Bombardier (Challenger)	7.8	7.6	0.2	6.8	7.3	7.6	6.1	7.8	8.2	7.9	**8.8**	8.0	8.8
Bombardier (Global)	7.8	7.6	0.2	7.2	7.8	7.5	6.1	8.0	8.3	8.1	**8.8**	7.9	8.5
Dassault (Falcon)	7.8	7.7	0.1	6.9	7.7	7.9	6.4	7.9	8.0	7.8	8.4	8.0	8.6
Gulfstream (G100-G280)	7.8	7.8	-	7.5	7.8	7.4	5.8	8.1	8.4	7.6	8.6	**8.7**	8.5
Bombardier (Learjet)	7.7	8.0	-0.3	7.7	7.1	7.7	6.4	8.1	7.9	7.7	8.6	7.6	7.8
Cessna (Citation)	7.3	8.0	-0.7	7.3	6.9	7.6	6.4	7.5	7.6	7.4	8.1	8.3	8.2
Hawker Beechcraft (Hawker)	6.6	6.7	-0.1	6.3	6.8	6.2	5.5	6.5	5.8	6.9	7.8	7.1	7.6
Hawker Beechcraft (Premier, Hawker 400XP)	6.1	6.8	-0.7	6.2	7.5	5.9	4.7	5.7	4.4	5.9	7.2	7.0	6.6
Older Business Jets													
Bombardier (Challenger)	**8.0**	7.7	0.3	6.8	**8.3**	7.9	6.1	8.1	**8.4**	**8.2**	**8.8**	8.4	**8.8**
Dassault (Falcon)	7.8	7.4	0.4	**7.4**	7.8	**8.1**	**6.2**	7.9	7.8	7.6	8.2	8.1	8.7
Gulfstream (GII-GV, G300-G550)	7.8	**8.1**	-0.3	**7.4**	7.2	7.9	5.7	**8.2**	7.8	8.1	8.6	**8.6**	**8.8**
Bombardier (Learjet)	7.4	7.7	-0.3	6.5	7.8	7.4	5.5	7.5	6.8	8.0	8.4	7.9	8.1
Cessna (Citation)	7.3	7.7	-0.4	6.9	6.7	7.5	6.1	7.4	7.5	7.1	8.0	7.8	8.4
Hawker Beechcraft (Premier, Beechjet 400/400A, Hawker 400XP)	6.7	7.0	-0.3	6.3	7.2	7.3	5.3	6.5	6.0	6.6	7.6	7.0	7.4
Hawker Beechcraft (Hawker)	6.2	7.2	-1.0	5.2	6.5	6.1	5.1	5.8	5.7	6.1	6.9	6.5	7.5
Newer Turboprops													
Pilatus (PC-12)	**8.1**	**7.9**	0.2	N/A	**8.1**	**7.7**	**6.5**	**7.8**	**8.5**	**8.6**	**7.6**	**8.9**	**9.0**
Beechcraft (King Air)	7.0	7.1	-0.1	**6.9**	7.0	6.9	5.4	6.7	6.9	7.2	7.4	7.6	8.4
Older Turboprops													
Mitsubishi (MU-2, Solitaire, Marquise)	**9.2**	**9.4**	-0.2	**8.7**	**8.9**	**9.5**	**8.4**	**9.7**	**9.0**	**9.2**	**9.5**	**9.2**	**9.9**
Beechcraft (King Air)	7.0	7.1	-0.1	6.8	7.5	7.2	5.4	7.0	6.4	7.4	6.5	6.7	8.7
Rotorcraft (all age Rotorcraft)													
Bell	**7.2**	**7.1**	0.1	6.0	6.8	**7.1**	**6.0**	**7.1**	7.8	**8.0**	8.3	6.7	**7.8**
AgustaWestland	7.1	6.5	0.6	**6.6**	**7.6**	6.5	**6.0**	**7.1**	**8.0**	7.9	7.8	6.6	7.5
Sikorsky	7.0	6.3	0.7	6.3	6.5	6.0	5.6	6.5	6.7	**8.0**	**8.5**	**7.7**	7.6
Airbus Helicopters	5.6	5.5	0.1	4.6	5.6	5.2	4.3	5.6	5.6	6.0	6.9	5.0	6.7

N/A: Insufficient responses. Listed in order of 2014 overall average (ties are listed alphabetically).
Rotorcraft ratings are based on rotorcraft of all ages.
***Bold** indicates highest number in each category.*

Rating Scale: 1 2 3 4 5 6 7 8 9 10
Inadequate — Poor — Average — Good — Excellent

*Source: **AIN** 2014 Product Support Survey*

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Gulfstream

Embraer

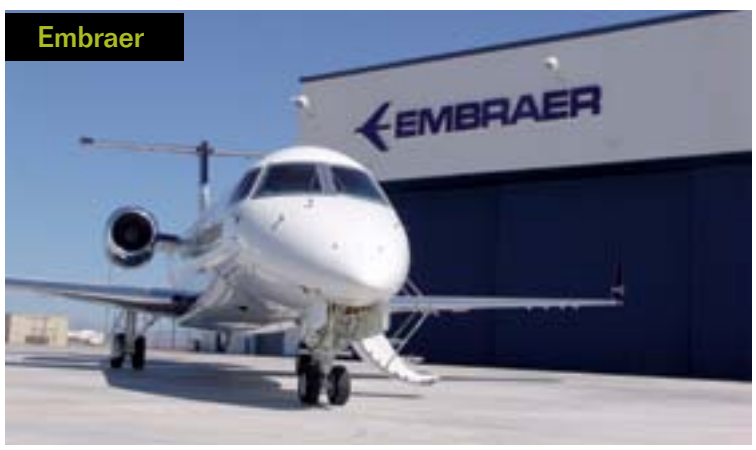
Embraer inaugurated its newest factory-owned service center in Soracaba, Brazil, in March. Able to fit up to 45 aircraft for storage and maintenance, the $25 million facility is five times larger than Embraer's headquarters service facility in São José dos Campos. Embraer currently has 68 service centers worldwide (a combination of factory-owned and authorized facilities), and many are preparing for the imminent entry into service of the Legacy 500 and next year, the 450.

In the U.S. Embraer opened a factory-owned service center at Teterboro Airport. The Asia service network grew with the addition of an authorized service center in Jakarta. Parts have been consolidated at Embraer's regional distribution center in Singapore, and the company expanded its Australia and India parts depots. At the Le Bourget service center in Paris, Embraer has added a mobile response unit, airworthiness management service and line maintenance for the Lineage 1000. Falcon Aviation Services, an Embraer authorized service center, opened its new 106,000-sq-ft facility at Al Bateen Executive Airport in Abu Dhabi late last year.

Last September, Embraer moved the customer support team from its Fort Lauderdale, Fla. service center to the Melbourne, Fla., production facility and engineering center. The Melbourne move includes the customer support management team, warranty, Embraer Executive Care sales and administration, field support, material services and finance. The service center itself will continue to be located in Fort Lauderdale.

Last year Embraer held 10 global conferences and nine mini conferences as part of its Embraer Executive Operators Conference series. More than 400 customers and operators participated, along with customer support and service center teams and suppliers. Embraer's Customer Support Contact Center celebrated its fifth anniversary this year, and the company is building a new facility where technical teams will be better integrated and offer more comprehensive around-the-clock support, according to Embraer.

Embraer's Customer Support and Service guide has been upgraded and is available in iOS or Android versions. A new feature is the "request support" function, which allows customers to make a support request to the Embraer Contact Center, and it also saves the customer identification in the app for future requests.



Embraer

Gulfstream

Gulfstream's product support organization added about 300 new employees during the past year. In Canada, Gulfstream granted its first company authorization for warranty maintenance in Canada, to Skyservice.

Gulfstream's factory-owned service center added wheel and brake capabilities and landing-gear component repairs in Appleton, Wis.; received CAAC approval for 1A through 6A inspections on the G200, G450 and G550 in Beijing; added a battery shop and a Spanish-speaking service center coordinator in Dallas; expanded the carpet and wood shops and added a tire shop in Long Beach, Calif.; and installed a G280 graphical flight simulator at the In-Flight Support Center in Savannah, Ga., to aid troubleshooting by allowing technicians to mirror in-flight circumstances. The Savannah center also received six monitors that show the status of the Gulfstream fleet worldwide, providing "a real-time visual overview of any AOGs."

New Gulfstream facilities include a parts/materials distribution center in Van Nuys, Calif., which will be stocked with $15 million worth of inventory by year-end. Gulfstream opened an Asia Customer Support Contact Center in Hong Kong, providing over-the-counter parts sales and warranty and technical operations support. The parts warehouse in Hong Kong was also expanded.

The Computerized Maintenance Program (CMP.net) was renamed MyCMP and redesigned to help customers navigate the website and enjoy greater functionality.

Gulfstream's iOS app, introduced in August last year, enables direct access to product support resources, including Gulfstream technical operations, factory-owned and independent service centers, warranty facilities, field service representatives, parts sales and other product support contacts.

The Field and Airborne Support Teams (Fast), which include mobile support and Gulfstream's G150 for quick problem resolution, added five technicians in Europe, bringing the total to 11 for handling issues in Europe, Africa, Asia and the Middle East. A G150 flew to Brazil to support operators during the FIFA World Cup. Gulfstream outfitted a 74-foot tractor-trailer equipped with tools, parts and technicians to support operators at events throughout the U.S. Three other Fast vehicles were added during the past year, in Houston and the New York and Los Angeles metropolitan areas.


Mitsubishi

Mitsubishi

There are 285 Mitsubishi MU-2 turboprops still flying, with approximately 250 of those in North America, and Japanese manufacturer Mitsubishi Heavy Industries America (MHIA) continues to provide strong support for the high-performance twin turboprop, the last of which rolled off the assembly line in 1986.

Service for the fleet is available from factory-owned and independent service centers, but a key part of the support network is Turbine Aircraft Services, based in Dallas, which is under contract to MHIA to manage MU-2 support activities. This includes the biennial MU-2 Pilot's Review of Proficiency (Prop) seminar series, four of which were held this year, as well as alternating-year safety meetings. These events are free and often attract not only long-time MU-2 pilots but also people who are considering buying an MU-2.

"We had one of the most successful Prop series of all time in 2014," said Pat Cannon, president of Turbine Aircraft services. He was encouraged to see a new crop of attendees, pilots who are new MU-2 owners and care deeply about safety. "They're all over the technology, training and doing things as they should be done," he said. These buyers are passionate about upgrading their MU-2s, and many are installing Garmin G600 and GTN650/750 avionics. They are also likely buyers of the soon-to-be-certified Alpha Systems angle-of-attack warning system.

Turbine Aircraft and MHIA are also looking into replacing Plexiglas cast windshields with stretched acrylic units, which will last longer. Another project is replacement of deteriorating faceplates on control wheels, all of which are decades old. "We've undertaken a program to use 3-D printing to build new facing plates," Cannon said.

Ultimately, an STC to replace MU-2 control wheels with Beechjet yokes might make sense, and this would also include the Beechjet's four-way trim switch. "I have reopened my discussions with the wheel manufacturer and with the person who owns the four-way trim switch mod, and we're probably going to do it if it's practical," he said. An STC for new hoses to replace expensive Japanese-made flexible hoses is in the final process, and this will help cut costs for operators.

For any parts that are in short supply, Turbine Aircraft and MHIA figure out how to source enough parts for the next 10 to 15 years, according to Cannon. "[MHIA] is still attuned to making an effort to service this airplane long into the future."

Keeping the fleet flying is not just about supplying parts, however; it has more to do with creating a robust safety culture throughout the MU-2 community. Before 2009, when the Special FAR requiring mandatory MU-2 pilot training took effect, there was a lot of pressure on the FAA from politicians who wanted something done about the MU-2's safety record. The agency asked MHIA to survey MU-2 owners about what was wrong with the MU-2, and 175 people responded, indicating that there was no consistent or mandatory training program. The result was that when the SFAR was enacted, "there was

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Textron Aviation

very little pushback," Cannon said. "The majority of operators applauded the FAA." Training to meet the SFAR requirements began before the 2009 implementation, because compliant training was grandfathered. The result of the SFAR-mandated initial, recurrent and requalification training is that the number of MU-2 accidents has dropped significantly, with just two fatal accidents since the SFAR took effect, "and neither one should have happened," he said.

"The theme of the next series of Prop seminars is going to surround the idea of 'Don't just have a safety culture–live the safety culture,'" Cannon concluded. "That's where we want to take this."

Pilatus Aircraft

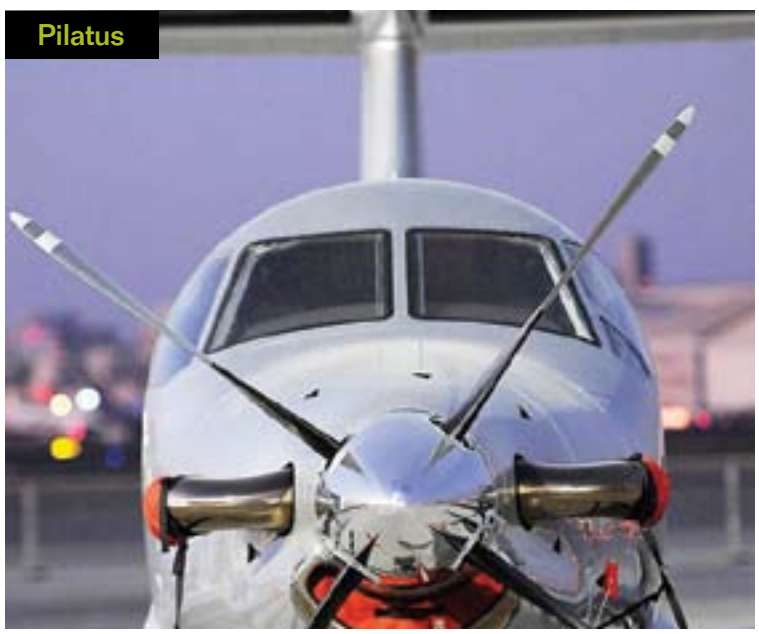
The Pilatus PC-12 single-engine turboprop fleet numbers 1,250, with 4.5 million flight hours in its logbooks. The latest model, the PC-12/47E (NG), has already passed half a million hours by 450 aircraft.

Product support improvements for the fleet introduced during the past year include a new Pilatus customer service mobile app for both iOS and Android devices. The app provides instant access to the nearest service center and Pilatus customer support contacts, documentation status lists and access to YouTube and Vimeo channels for PC-12 videos, including Honeywell Training TV videos. PC-12 training, promotional and customer testimonial videos are available on the Pilatus website.

Pilatus conducted 11 M&O seminars and regional operator conferences during the past year on five continents. The technical publications order process was streamlined, according to Pilatus, "by offering multi-year and multi-product bundles."

Air Alliance in Germany was appointed a PC-12 service center last year, and Aeroservicio of Chile and Avcraft Engineering of New Zealand were appointed satellite service centers.

The 2014 PC-12 NG has new features that will reduce operating costs, such as an electric landing gear, which shaves 13 pounds off the empty weight, and all-LED external lighting. The Connected Flight Deck, developed in partnership with Aspen Avionics, Honeywell and Jeppesen, has been ordered by more than 70 percent of PC-12 NG buyers. Features include four iPad apps that interface with the Aspen CG100P Connected Gateway installed in the PC-12. The apps offer easy wireless database updates, uploading of off-aircraft flight planning into the FMS, maintenance and diagnostic recording and moving maps for passengers.


Pilatus

Textron Aviation (Beechcraft and Cessna)

Following Textron's purchase of Beechcraft earlier this year, the company has begun merging product support efforts for its Beechcraft and Cessna brands, and Brad Thress was appointed senior vice president of customer service. There are now 21 factory-owned service facilities worldwide for Beechcraft and Cessna support and some 40 mobile service units in North America and Europe. These units have made 12,000 visits since they were launched.

All of the Textron Aviation facilities are transitioning to offering maintenance services for Citations, Hawkers and King Airs, with mechanics undergoing cross training and EASA approval to work on multiple types. Before Beechcraft's acquisition by Textron, most Hawker and Beechcraft maintenance in Europe was done by authorized third parties, but Textron now offers the option of factory-provided maintenance for those aircraft.

The Textron service network is also in the midst of consolidating two separate networks of parts distribution and field service teams.

In Europe, Textron Aviation's service centers have received EASA continuing airworthiness management organization (Camo) approval in Paris; Doncaster, UK; and Düsseldorf, Germany. This allows these centers to issue and extend airworthiness review certificates to EASA-registered aircraft.

In Europe, the company opened three new line support stations for Beechcraft and Cessna aircraft, at London Luton Airport, Cannes Mandelieu Airport and in Geneva. Services include repairs, inspections and AOG support.

For operators of Citation CJ2s, Cessna introduced the CJ2+ Alpine edition, which includes an upgrade to the Garmin G3000 avionics suite, automatic pressurization and a new environmental control system, new diagnostic systems, ADS-B OUT capability and upgraded cabin features.

Twin Commander Aircraft

Owners and operators of Twin Commander turboprops (and even the piston-powered models) enjoy continued support from Twin Commander Aircraft, and there are still about 700 of the various turboprop versions flying. There are 23 authorized service centers.

The big trend for Twin Commander owners has been avionics upgrades, and the STC for the Garmin G950 suite is a bestseller, according to Twin Commander's Mark Matheson. "They're selling them as fast as they can build them," he said. The G950 is basically a G1000 without a Garmin autopilot, and it works with the S-Tec 2100 autopilot that many owners have already installed.

Twin Commander owners were faced with an expensive FAA airworthiness directive involving cracks in the aft pressure bulkhead (covered by Service Bulletin 241). Twin Commander Aircraft was able to lower the cost of compliance a bit by obtaining FAA approval for a staged approach to conducting the expensive repair. "The majority of the fleet has complied," Matheson said. "This was an effort by Twin Commander to be proactive and keep them flying."

To help keep the fleet healthy, Twin Commander launched its own maintenance training program because such training isn't available from SimCom, the official flight training provider. Four training events will be held this year.

Other improvements include an updated fuel tank kit (CK 189), a kit for installation of high-intensity-discharge landing/recognition lights (CK 182L) and LED lights for the cabin (CK 190). The cost of replacement electrically heated windshields is an issue, and Twin Commander is offering a $5,500 rebate for each side.

Each year, the company holds a Twin Commander University event, and nearly 80 owners attended this year's event in April.

ROTORCRAFT

AgustaWestland

Customer support and training accounts for 40 percent of AgustaWestland's revenue. The helicopter manufacturer has revamped its approach to support maintenance by taking advantage of common components, cockpit equipment, maintenance equipment and tools. For fleet operators that fly at least two of the manufacturer's three production models, AgustaWestland says it has been able to improve support and efficiency, reduce life-cycle costs and improve mission effectiveness significantly.

Support for the new AW189 is enhanced by a ground maintenance simulator, advanced health and usage monitoring system and virtual maintenance training. This approach is also being applied to the in-development AW169.

AgustaWestland has developed a new progressive maintenance program for the AW139 that will "maximize availability." The AW139's main-gearbox TBO has been extended to 6,000 flight hours and the tail rotor and intermediate gearboxes to 7,500 hours, a 20-percent and 50-percent increase respectively. The company's interactive electronic technical publications for the AW139 are now available on tablets and smartphones.

A new repair and overhaul facility was added to subsidiary Agusta Aerospace Services in Zaventem, Belgium, and its AgustaWestland do

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PRODUCT SUPPORT SURVEY 2014

Brasil facility in São Paolo is being expanded, according to the company, "with space that could accommodate a helicopter final assembly line, training center, bonded warehouse, workshops and other supporting services, including a dedicated heliport."

Airbus Helicopters

Under CEO Guillaume Faury, who took over last year, Airbus Helicopters is "making sweeping changes to our management methods and processes, both internally and with our suppliers. These efforts are in their early stages, but already we have seen significant improvements in some critical areas. In particular we are doing a better job of having spare parts available for when our customers need them."

Delayed delivery of parts has been reduced by "more than 20 percent" during the past 12 months. The company's goal is to achieve 90 percent on-time deliveries by the end of this year and 95 percent next year. Parts order fill rates "have climbed in 2013 and 2014. This is progress, trending in the right direction, and we are working hard but we are not satisfied." Although inventories of the most frequently ordered parts have doubled since 2012, Airbus Helicopters says it is making further investments to bolster these inventories.

"We strongly want to get much better and we are determined to do so. In these and in many other areas our management team, led by Guillaume Faury, is pushing for greater improvements and achieving them faster."

Bell Helicopter

Bell Helicopter Customer Support and Service (CSS) has held six M&O conferences this year and has more scheduled for the remainder. CSS also held four global safety symposiums addressing flight and maintenance safety as part of Bell's work with the International Helicopter Safety Team.

To help lower operating costs, Bell signed an MoU to collaborate with Able Engineering on repairs for Bell components. Bell also signed an MoU with Van Horn Aviation for development of composite main rotor blades for the Bell 206.

Bell 407 operators can buy a new polycarbonate windshield from Bell's Aeronautical Accessories division. The material provides better impact resistance than acrylic.

Bell opened a composite manufacturing, repair and overhaul facility in Broussard, La., in March. The $4.5 million facility will make and repair composite parts for current and legacy Bell helicopters.

At its Singapore factory-owned service center, Bell received Singapore Civil Aviation Authority approval for maintenance and customization of Bell 206s, 407s and 429s certified under Transport Canada regulations. The Bell Helicopter Training Academy received approved for technical training by the Australian Civil Aviation Safety Authority for the 412EP/EPI (B1.3 and B2).

Sikorsky

Sikorsky says it has changed the way it interfaces with customers and early this year reorganized its business structure so customers have a single-point of access for the entire duration of their helicopter ownership, beginning with the first purchase inquiry. Sikorsky created two entities–Commercial Systems & Services and Defense Systems & Services–to provide sales, delivery and aftermarket support under this reorganization.

The S-76D entered service this year with a support program that includes "customer training, service, support and focused customer communication as well as the use of customer data for advanced fleet analytics by Sikorsky's Fleet Management Operations Center."

The analysts combine data from the S-76D's health and usage monitoring system with maintenance and operational data "to proactively identify opportunities for cost and availability improvements," according to Sikorsky. ❑

Airbus Helicopters

Bell Helicopter

iPad Winners

The following people were randomly selected as winners of an Apple iPad for participating in our annual Product Support Survey

- Paul Hansrote, captain
- John Zinser, senior aircraft tech
- Chris Lacroix, director of maintenence
- James Porterfield, captain
- Earle Martin, chief pilot

AIN readers honor those who go above & beyond

We asked **AIN** Product Support Survey participants to list their favorite support providers and what they like about the service they receive. Here are some of the companies and people respondents chose to recognize.

Authorized Service Centers

Associated Air Center: Boeing
Knows the aircraft very well, and we always come out of an inspection on time or early and under budget.

MAGA Aviation: Bombardier
The best one in Brazil is MAGA Aviation. Thanks to engineer Edivaldo "MacGyver" Coelho. Under his leadership, the team always finds the best way to support the customers.

Duncan Aviation: Falcon
We have used Duncan Aviation Battle Creek and Lincoln for this aircraft. They're as knowledgeable and as good as the Dassault service center.

Constant Aviation: Embraer
We couldn't be more happy: friendly environment, fair prices and efficient service. Very low ground time.

ExecuJet Australia: Gulfstream
ExecuJet Australia provides excellent maintenance and technical support.

West Star Aviation: Hawker
West Star–great people, great maintenance. They seem to genuinely care about doing the absolute best.

Epps Aviation: Pilatus
Epps Aviation has been fantastic in its knowledge of the airframe as well as support and response times.

Technical Representatives

Michael Blouin: Bombardier
Michael Blouin is one of the best field service representatives in the industry. I would also like to say thank you to the customer response center team for doing an outstanding job and getting better every year.

Bill Sciscoe: Bombardier
Our rep Bill Sciscoe does a great job. The customer response center in Montreal is also excellent. Very knowledgeable field service representatives across the board.

Randy Davis: Textron Aviation (Cessna)
Randy Davis, our Cessna representative, is an extremely valuable resource.

Tim Noble & Hank Hilsmann: Dassault
Tim Noble has the patience of a saint. He's been on the receiving end of more than one of my phone tirades and always handled them professionally. Honorable mention to Hank Hilsmann in this category as well.

Mike Valek, Gilbert Gonzalez & Bruno Macedo: Embraer
Embraer has the best people in the business. Whether we are talking to Mike Valek, Gilbert Gonzalez or the other field service representatives in the U.S. or Bruno Macedo and the dedicated team of technical representatives at the contact center in Brazil, we always receive impeccable service and support.

David Peres & Chris Ellender: Gulfstream
Always available and listening to your demands. Our acknowledgement to David Peres (Madrid) and Chris Ellender (London).

Warren Hallstrom: Textron Aviation (Hawker Beechcraft)
Warren Hallstrom has been very helpful and knowledgeable, always available.

Rick Wheldon: Mitsubishi
Rick Wheldon at Turbine Aircraft Services is excellent.

John Conrad & Chris Lemieux: AgustaWestland
John Conrad is our field service rep. [Available] any time and willing to travel any place in support of our operations. Service Engineering is very supportive in our operation and Chris Lemieux works very hard in resolving any issue we present to their department.